

## WHAT IS CLAIMED IS:

1. A display device comprising:
- a. a plurality of cathode wires,
  - b. a plurality of anode wires arranged in a matrix shape
- 5 together with said plurality of cathode wires,
- c. light emitting elements disposed between said plurality of cathode wires and anode wires,
  - d. a current source to said anode wires,
  - e. a voltage source to said cathode wires,
- 10 f. an anode control circuit for connecting between said anode wires and said current source,
- g. a cathode control circuit for connecting between said cathode wires and said voltage source, and
  - h. a display controller for controlling said anode control
- 15 circuit and said cathode control circuit,
- i. wherein said display controller comprises a setting unit for setting the discharge time for discharging the accumulated charge of said light emitting elements before light emission of the light emitting elements, and operates and
- 20 controls said anode control circuit and said cathode control circuit for discharging the accumulated charge of said light emitting elements within said set discharge time, and also operates and controls said anode control circuit and said cathode control circuit for emitting said light emitting
- 25 elements after discharge control of said accumulated

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charge.

2. The display device of claim 1, wherein said plurality of anode wires are formed in stripes, and said plural cathode wires are also formed in stripes.

3. The display device of claim 1, wherein supposing the luminance of said light emitting element when emitting light in no-charge or almost no-charge accumulated state to be  $L_e$ , and the luminance by actual light emission to be  $L_p$ , they are in the relation of

$$L_p \geq 0.9 \times L_e$$

, and further supposing the discharge time to satisfy this relation to be  $T_x$ , the discharge time  $R_t$  of actual discharge is determined to satisfy the relation of

$$T_x \leq R_t.$$

4. The display device of claim 3, wherein the discharge time  $R_t$  is set to satisfy the relation of

$$R_t \leq B \times T_x \text{ (where } 1 < B < 10)$$

where  $R_t$  is the discharge time of actual discharge, and  $T_x$  is the discharge time.

5. A driving method of a display device, relating to:

a. a display device comprising a plurality of cathode wires, a

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plurality of anode wires arranged in a matrix shape together with said plurality of cathode wires, and light emitting elements disposed between said plurality of cathode wires and anode wires, and

b. a driving method of said display device for discharging the accumulated charge of said light emitting elements before light emission of the light emitting elements, wherein

c. supposing the luminance of said light emitting element when emitting light in no-charge or almost no-charge accumulated state to be  $Le$ , and the luminance by actual light emission to be  $Lp$ , they are in the relation of

$$Lp \geq 0.9 \times Le$$

and further supposing the discharge time to satisfy this relation to be  $Tx$ , the discharge time  $Rt$  of actual discharge is determined to satisfy the relation of

$$Tx \leq Rt.$$

6. The driving method of the display device of claim 5, wherein the discharge time  $Rt$  is set to satisfy the relation of

$$Rt \leq B \times Tx \text{ (where } 1 < B < 10\text{)}$$

where  $Rt$  is the discharge time of actual discharge, and  $Tx$  is the discharge time.

7. ~~The display device of claim 1, wherein  $Tf$  is the rise time of said light emitting element accumulating the charge sufficiently, and  $Te$  is the rise time of said second light emitting element having no~~

~~charge accumulated in the light emitting element or almost no charge accumulated, being in the relation of~~

$$T_p = K \times (T_f - T_e) + T_e \text{ (where } 0 < K < 0.5)$$

and the rise time  $T_p$  to satisfy this relation is determined, and

5 further supposing the discharge time corresponding to said rise time  $T_p$  to be  $T_y$ , and the discharge time of actual discharge to be  $R_t$ , the discharge time  $R_t$  is set to satisfy the relation of

$$T_y \leq R_t.$$

10 8. The display device of claim 7, wherein the discharge time  $R_t$  is set so satisfy the relation of

$$R_t \leq B \times T_y \text{ (where } 1 < B < 10)$$

where  $R_t$  is the discharge time of actual discharge, and  $T_y$  is the discharge time.

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9. ~~A driving method of a display device, relating to:~~

a. a display device comprising a plurality of cathode wires, a plurality of anode wires arranged in a matrix shape together with said plurality of cathode wires, and light emitting elements disposed  
20 between said plurality of cathode wires and anode wires, and

b. a driving method of said display device for discharging the accumulated charge of said light emitting elements just before light emission of the light emitting elements, wherein

c.  $T_f$  is the rise time of said second light emitting element  
25 ~~accumulating the charge sufficiently in the light emitting element,~~

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and  $T_e$  is the rise time of said second light emitting element having no charge accumulated in the light emitting element or almost no charge accumulated, being in the relation of

$$T_p = K \times (T_f - T_e) + T_e \text{ (where } 0 < K < 0.5)$$

- 5 and the rise time  $T_p$  to satisfy this relation is determined, and further supposing the discharge time corresponding to said rise time  $T_p$  to be  $T_y$ , and the discharge time of actual discharge to be  $R_t$ , the discharge time  $R_t$  is set to satisfy the relation of

$$T_y \leq R_t.$$

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10. The driving method of display device of claim 9, wherein the discharge time  $R_t$  is set so satisfy the relation of

$$R_t \leq B \times T_y \text{ (where } 1 < B < 10)$$

- 15 where  $R_t$  is the discharge time of actual discharge, and  $T_y$  is the discharge time.

- 20 11. The display device of claim 1, wherein supposing the maximum value of the discharge current value flowing by discharge of said accumulated charge to be  $I_p$ , the time required for the discharge current to reach the discharge current value  $I_d$  to satisfy

$$I_d = D \times I_p \text{ (where } 0 < D < 0.3)$$

to be  $T_z$ , and the actual discharge time to be  $R_t$ , the discharge time  $R_t$  is set to satisfy the relation of

$$T_z \leq R_t.$$

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where  $R_t$  is the discharge time of actual discharge, and  $T_z$  is the discharge time.

a. a display device comprising a plurality of cathode wires, a plurality of anode wires arranged in a matrix shape together with said plurality of cathode wires, and light emitting elements disposed between said plurality of cathode wires and anode wires, and

c. supposing the maximum value of the discharge current value flowing by discharge of said accumulated charge to be  $I_p$ , the time required for the discharge current to reach the discharge current value  $I_d$  to satisfy

to be  $T_z$ , and the actual discharge time to be  $R_t$ , the discharge time  $R_t$  is set to satisfy the relation of

~~$T_z \leq R_t.$~~

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the discharge time  $R_t$  is set so satisfy the relation of

$$R_t \leq B \times T_z \text{ (where } 1 < B < 10)$$

where  $R_t$  is the discharge time of actual discharge, and  $T_z$  is the discharge time.

- 5            15. A portable terminal comprising:
- a) an audio signal converter for converting sound into an audio signal,
  - b) an operation unit for entering telephone number or the like,
  - 10           c) a display unit for displaying incoming notice, telephone number, or the like,
  - d) a communication unit for converting the audio signal into a transmission signal,
  - e) a receiver for converting the reception signal into an audio
  - 15           signal,
  - f) an antenna for transmitting and receiving said transmission signal and reception signal, and
  - g) a controller for controlling each part,
- wherein said display unit is composed of the display device of
- 20           claim 1.

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